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## THE DYNAMICS OF THE PREVALENCE OF DIABETES AND THE STUDY OF DENTAL STATUS IN CHILDREN OF THE BUKHARA REGION

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## Cover Page Footnote

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## THE DYNAMICS OF THE PREVALENCE OF DIABETES AND THE STUDY OF DENTAL STATUS IN CHILDREN OF THE BUKHARA REGION

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*The frequency of diabetes mellitus, endocrine disorders, and thyroid disease in children were studied in the Bukhara endocrinological clinic in the children's department in the period of 2017-2019. The "Healthy Tooth" program was developed according to the following parameters: anamnesis of life, condition of the periodontium, condition of the oral mucosa, rate of caries spread, occlusion state, oral hygiene state and tongue condition.*

*Key words: endocrine disorders, diabetes mellitus, disability, caries, periodontitis, occlusion, tooth, prevention.*

**Relevance**

According to WHO, people with disabilities make up one tenth of the world's population. It is known that the incidence of childhood disability in developed countries is 250 cases per 10,000 children, and has a clear upward trend. According to the UNICEF American Foundation, every twentieth child today has one or another category of disability. In other words, there are now about 93 million disabled children in the world. Dental diseases are one of the most common diseases among other diseases, with caries and its complications leading to cerebral palsy. Cerebral palsy in children is defined as a disability from 3 to 5 patients per 1000 births. According to dental examinations, the spreading of caries and its complications in children with cerebral palsy varies from 80% to 85% [8].

The problem of child disability is a top priority throughout the world and in our country, in particular, according to N.V. Shovkun and A.V. Fomina, the number of children with disabilities in the Russian Federation has grown significantly over the period from 2009 to 2015. In 2009, their number was 515,000 people, and by 2015 increased to 605,000 hours.

N.A. Golikov and co-authors (2015), relying on official statistics, report that by 2012 among disabled children, about 170,000 have not studied anywhere, and only 100,000 children with disabilities attended a comprehensive school.

The high prevalence of childhood disability and its steady growth create great difficulties in the medical care of this contingent. The practical work of the dentist with children with

disabilities is associated with the expressed difficulties of conducting medical and preventive procedures.

Today, the issue of prevention of various diseases in children with disabilities is especially relevant throughout the world.

Currently, there is practically no information in the literature about large-scale programs of dental prophylaxis for children with disabilities.

Dental morbidity of children, including persons with disabilities, remains one of the most acute and urgent problems in the CIS countries.

V.V. Korchagina, having examined children with defects of the central nervous system and musculoskeletal system, revealed a high prevalence of dental diseases: multiple malformations of hard tooth tissues, various dentition, anomalies, periodontal inflammation due to poor oral hygiene. The author points out the difficulties of diagnosis and treatment of dental pathology in this category of patients.

E.V. Mikhailova evaluated the organization of dental care for 2-18 years old children with disabilities. The prevalence of caries in preschool children was 87.5%, with an average intensity according to the KP-3.2 index; in school-age children 74.4%; maxillofacial anomalies in schoolchildren were diagnosed in 80.1% of cases, the prevalence of periodontal tissue diseases was 100%; with an oral hygiene index of 2.3. The quality of dental care, estimated by the index "level of dental care", was 9% for preschool children, 21% for schoolchildren, which corresponded to a poor and insufficient level of dental care.

A.K. Iordanishvili, L.N. Soldatova, evaluating the dental status of children with diabetes,

assessed somatic pathology for the condition of hard tissues of teeth, periodontal and the level of individual hygiene. Children were watched for a year. It has been established that children with type I diabetes mellitus are more likely than healthy children to suffer from periodontal inflammatory pathology, and their dental caries is more intense than in children without somatic diseases.

Diabetes mellitus is one of the progressive diseases worldwide leading to a large number of complications in various systems of the body, including dentofacial. The data of the WHO expert commission indicates an increase in the number of patients with diabetes mellitus worldwide, by 5-10% annually, and in the Russian Federation over the past 5 years there has been an increase in incidence from 10.4 to 13.4 cases per 100,000 children [3.6.7]. Childhood diabetes is a serious problem. In this regard, this disease is among the first priority-oriented national health programs of all countries of the world [1.2].

In diabetes mellitus, changes in the oral mucosa occur. The epithelial layer becomes thinner, the size of cellular elements decreases, and elastic fibers thicken. With this disease, salivation is disturbed, the quantity and quality are reduced, which prevents the development of pathology of the mucous membrane. According to some authors, dental health in patients with diabetes is deteriorating.

Pathological processes that occur in the pancreas with type I diabetes in children are reflected to one degree or another in all tissues of the body, but the earliest expressed disorders are determined on the mucous membrane of the oral cavity and on the dorsal surfaces of the tongue [4.5].

The positive effects of chronic catarrhal gingivitis in children with objective evidence, but also the PMA and clinical evaluation results, were found in patients with localized. In this way, the local was effective in treating patients with chronic catarrhal gingivitis. Additionally, the disease has been prevented from recovering the normal physiological condition of the milk, the intoxication centers in the child's body have been reduced and the efficacy of chewing is improved [9].

**Purpose of work:** To study the features of the dental status in children with diabetes mellitus and improve the condition of periodontal tissues.

Improving the effectiveness of primary prevention of major dental diseases in children with diabetes who are under clinical supervision in an endocrinological clinic in Bukhara.

**Tasks:** To determine the prevalence and intensity of dental caries, dentofacial anomalies, the prevalence of periodontal tissue diseases. To develop "Healthy Tooth" lessons for children and adolescents with varying degrees of endocrinological diseases and introduce them into the educational process.

### Materials and methods

Clinical studies were conducted in the regional endocrinological clinic, at the children's department. Observations were conducted for children aged 6 to 18 years. In 2017, the number of general patients was 420, of which 121, disabled children received social benefits from the state.

During the observation among endocrinological diseases, the total number of children with diabetes was 350, of which 21 were newly diagnosed.

In 2018, the number of general patients was 470, of which 173 children received social benefits. Among all endocrinological diseases, diabetes mellitus-368 gives a high rate, 23 of which were first detected.

In 2019 (over 8 months), the number of patients was 296, of which 88 were children receiving social benefits.

The analysis showed that diabetes is often found among children in hospital care.

**A comprehensive** study of the oral cavity included the identification of patient complaints, medical history, visual examination, an index assessment of the state of hard tissues of teeth and periodontal tissues.

In the course of the study, we developed the Healthy Tooth program, which included the following parameters:

- anamnesis of life;
- bleeding gums - a periodontal condition;
- the condition of the oral mucosa;
- the prevalence of caries;
- condition of occlusion;
- the state of oral hygiene;
- the state of the tongue.

The number of patients under clinical supervision in the regional endocrinological clinic in the children's department

No	Disease	General	Girls
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1	Endocrinedisorders	5029	2772
2	Thyroiddisease	3000	1892
3	Diffusegoiter	2822	1764
4	Congenitalhypothyroidism	14	10
5	Nodulargoiter	62	47
6	Thyrotoxinosis	23	22
7	Diabetes	159	111
8	PituitaryDisease	76	28
9	Pituitaryhypofunction	76	28
10	Itsenko-Cushing	1	-
11	Reproductivesystem	291	46
12	TurnerSyndrome	11	11

The number of patients with newly diagnosed diseases  
in the regional endocrinological clinic in the children's department

Disease	2017	2018	2019 (until September)
Diabetes	21	23	20
Diabetesinsipidus	22	18	15
Hypotheriosis	6	2	1
Diffusegoiter	4	2	3
SyndromeShershevskyTurner	2	4	1
Nodulargoiter	4	3	3
Congenitalhypothyroidism	11	12	2
Hypovizardwarfism	8	9	5
Itsenko-Cushing	1	1	1
Obesity	1	1	1

The number of patients in the regional endocrinological clinic in the children's department for the  
period 2017-2019.

№	Disease	
1	Endocrinedisorders	5036
2	Thyroiddisease	4708
3	Endemicgoiter	4703
4	Nodulargoiter	4
5	Reproductivesystem	34
6	Cryptorchidism	25
7	Obesity	52

#### Resultant discussion:

Analyzing the history of the life and illness of children suffering from type I diabetes, we found that in 38% of cases they had a hereditary

predisposition to this pathology, in 10% of cases it was provoked by a stressful situation, 11% of patients noted the first symptoms after transferred viral infection. 41% of the observed children and

their parents did not associate the onset of the disease with any factor.

According to the parents, it was found that a change in the general condition of the initial period of the disease was noted in 89.2% of children, and only 10.8% of cases the patients did not present characteristic complaints, and the diagnosis was established by additional laboratory tests of blood serum.

88% of children were bothered by gum bleeding when brushing their teeth and eating. At the same time, these changes in periodontal tissues often appeared 1.5-2 years before diagnosis. There was gingival hyperemia, gum bleeding. When examining the appearance of the red border and lips of 57% of children, a change in the oral cavity was observed with type 1 diabetes mellitus, children did not always complain of hyposalivation. When examining the oral cavity, a decrease in the humidity of the oral mucosa was observed. According to the results of the CPU, we noted a high intensity of caries in children with this pathology.

The intensity of caries was determined using the indicator KPU + kpu according to Yu.A. Fedorov, V.V. Volodkina.

During the study, the state of the tongue of patients with type I diabetes mellitus, we observed a slight pathology of the tongue - slightly overlaid, and the papilla of the tongue tended to change color and size.

We conducted a lesson "Healthy Tooth" once a week in an endocrinology clinic for children with diabetes. Under this program, we have developed the following parameters for the prevention of dental diseases:

- oral hygiene;
- teeth cleaning;
- selection of brushes and pastes;
- selection of hygiene products;
- means for rinsing;
- proper nutrition.

In the course of preventive measures, we closely communicated with the parents of children with diabetes, who were shown an individual approach when choosing hygiene products, the choice of brushes, pastes, therapeutic rinses and gels. Equally important is the role of good nutrition in the prevention of oral diseases. Parents were advised to visit the dentist every three months, diabetes control, compliance with simple hygiene

rules, in order to avoid the occurrence of dangerous diseases of the oral cavity caused by the underlying diabetes.

As a result of a serious condition with this pathology, an unsatisfactory hygienic condition of the oral cavity was observed, which prevents full-fledged individual oral hygiene. Poor oral hygiene has contributed to the development of inflammatory diseases of periodontal tissues such as catarrhal and hypertrophic gingivitis and periodontitis.

### Conclusion

It was found that diabetes in children among endocrinological diseases is more common. The study of the dental status during the examination in children with diabetes mellitus showed that carrying out preventive work with parents to increase the level of knowledge about the care of the teeth and oral cavity of their children gives a significant effect and optimal dental health outcome.

When examining children, the dentist should pay attention to the presence of changes in the oral mucosa and the red border of the lips. When informing parents about the heredity of diabetes, the dentist must collect a thorough history of the child.

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